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1 Teaching data warehousing and data mining in a graduate program of information technology

Roger Fang, Sama Tuladhar

May 2006 **Journal of Computing Sciences in Colleges**, Volume 21 Issue 5

Publisher: Consortium for Computing Sciences in Colleges

Full text available:  [pdf\(316.55 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Data warehousing and data mining are technologies that deliver critical and optimally useful information to facilitate performance analysis of business organizations. These technologies are not only an emerging trend in information technology but also a booming market in a range of industries. In light of this continuously growing demand, schools are accelerating to prepare students with these technologies. This paper describes the key components that comprise a course which would introduce both ...

2 Exploring data mining implementation



Karim K. Hirji

July 2001 **Communications of the ACM**, Volume 44 Issue 7

Publisher: ACM Press

Full text available:  [pdf\(101.20 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#),
 [html\(40.65 KB\)](#) 

3 Warehousing and mining Web logs



Karuna P. Joshi, Anupam Joshi, Yelena Yesha, Raghu Krishnapuram

November 1999 **Proceedings of the 2nd international workshop on Web information and data management WIDM '99**

Publisher: ACM Press

Full text available:  [pdf\(1.66 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Analyzing Web Logs for usage and access trends can not only provide important information to web site developers and administrators, but also help in creating adaptive web sites. While there are many existing tools that generate fixed reports from web logs, they typically do not allow ad-hoc analysis queries. Moreover, such tools cannot discover hidden patterns of access embedded in the access logs. We describe a relational OLAP (ROLAP) approach for creating a web-log warehouse. This is pop ...

Keywords: Web logs, Web mining, ad hoc analysis, clustering, user interface

4 Entropy-based subspace clustering for mining numerical data

◆ Chun-Hung Cheng, Ada Waichee Fu, Yi Zhang

August 1999 **Proceedings of the fifth ACM SIGKDD international conference on Knowledge discovery and data mining KDD '99**

Publisher: ACM Press

Full text available:  [pdf\(1.08 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

5 Discovering Internet marketing intelligence through online analytical web usage

◆ mining

Alex G. Büchner, Maurice D. Mulvenna

December 1998 **ACM SIGMOD Record**, Volume 27 Issue 4

Publisher: ACM Press

Full text available:  [pdf\(772.06 KB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

This article describes a novel way of combining data mining techniques on Internet data in order to discover actionable marketing intelligence in electronic commerce scenarios. The data that is considered not only covers various types of server and web meta information, but also marketing data and knowledge. Furthermore, heterogeneity resolution thereof and Internet- and electronic commerce-specific pre-processing activities are embedded. A generic web log data hypercube is formally defined ...

6 Research track: SEWeP: using site semantics and a taxonomy to enhance the Web

◆ personalization process

M. Eirinaki, M. Vazirgiannis, I. Varlamis

August 2003 **Proceedings of the ninth ACM SIGKDD international conference on Knowledge discovery and data mining KDD '03**

Publisher: ACM Press

Full text available:  [pdf\(429.65 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Web personalization is the process of customizing a Web site to the needs of each specific user or set of users, taking advantage of the knowledge acquired through the analysis of the user's navigational behavior. Integrating usage data with content, structure or user profile data enhances the results of the personalization process. In this paper, we present SEWeP, a system that makes use of both the usage logs and the semantics of a Web site's content in order to personalize it. Web content is ...

Keywords: Web mining, Web personalization, concept hierarchies, semantic annotation of Web content

7 Fast detection of communication patterns in distributed executions

Thomas Kunz, Michiel F. H. Seuren

November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research CASCON '97**

Publisher: IBM Press

Full text available:  [pdf\(4.21 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams are often used to obtain a better understanding of the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Waterloo. However, these diagrams are often very complex

and do not provide the user with the desired overview of the application. In our experience, such tools display repeated occurrences of non-trivial commun ...

8 Contributed articles on online, interactive, and anytime data mining: Requirements for clustering data streams

 Daniel Barbará

January 2002 **ACM SIGKDD Explorations Newsletter**, Volume 3 Issue 2

Publisher: ACM Press

Full text available:  pdf(486.13 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Scientific and industrial examples of data streams abound in astronomy, telecommunication operations, banking and stock-market applications, e-commerce and other fields. A challenge imposed by continuously arriving data streams is to analyze them and to modify the models that explain them as new data arrives. In this paper, we analyze the requirements needed for clustering data streams. We review some of the latest algorithms in the literature and assess if they meet these requirements.

Keywords: Data streams, clustering, outliers, tracking changing models

9 Web personalization: Web personalization integrating content semantics and navigational patterns

 Magdalini Eirinaki, Charalampos Lampos, Stratos Paulakis, Michalis Vazirgiannis

November 2004 **Proceedings of the 6th annual ACM international workshop on Web information and data management WIDM '04**

Publisher: ACM Press

Full text available:  pdf(502.59 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The amounts of information residing on web sites make users' navigation a hard task. To address this problem, web sites provide recommendations to the end users, based on similar users' navigational patterns mined from past visits. In this paper we introduce a recommendation method, which integrates usage data recorded in web logs, and the conceptual relationships between web documents. In the proposed framework, the usage-oriented URI representation of web pages and users' behavior is augmen ...

Keywords: concept hierarchies, semantic web mining, semantic web personalization, web content semantics

10 Book reviews: Data mining: concepts and techniques by Jiawei Han and Micheline Kamber

 Fernando Berzal, Nicofás Matín

June 2002 **ACM SIGMOD Record**, Volume 31 Issue 2

Publisher: ACM Press

Full text available:  pdf(308.51 KB) Additional Information: [full citation](#)

11 DBMiner: a system for data mining in relational databases and data warehouses

Jiawei Han, Jenny Y. Chiang, Sonny Chee, Jianping Chen, Qing Chen, Shan Cheng, Wan Gong, Micheline Kamber, Krzysztof Koperski, Gang Liu, Yijun Lu, Nebojsa Stefanovic, Lara Winstone, Betty B. Xia, Osmar R. Zaiane, Shuhua Zhang, Hua Zhu

November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research CASCON '97**

Publisher: IBM Press

Full text available:  pdf(280.67 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A data mining system, DBMiner, has been developed for interactive mining of multiple-level knowledge in large relational databases and data warehouses. The system implements a wide spectrum of data mining functions, including characterization, comparison, association, classification, prediction, and clustering. By incorporating several interesting data mining techniques, including OLAP and attribute-oriented induction, statistical analysis, progressive deepening for mining multiple-level knowled ...

12 [Parallel database processing on a 100 Node PC cluster: cases for decision support query processing and data mining](#) 

 Takayuki Tamura, Masato Oguchi, Masaru Kitsuregawa
November 1997 **Proceedings of the 1997 ACM/IEEE conference on Supercomputing (CDROM) Supercomputing '97**

Publisher: ACM Press

Full text available:  pdf(157.74 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

We developed a PC cluster system consists of 100 PCs. Each PC employs the 200MHz Pentium Pro CPU and is connected with others through an ATM switch. We picked up two kinds of data intensive applications. One is decision support query processing. And the other is data mining, specifically, association rule mining. As a high speed network, ATM technology has recently come to be a de facto standard. While other high performance network standards are also available, ATM networks are widely used from ...

13 [Research track poster: Privacy-preserving distributed k-means clustering over arbitrarily partitioned data](#) 

 Geetha Jagannathan, Rebecca N. Wright
August 2005 **Proceeding of the eleventh ACM SIGKDD international conference on Knowledge discovery in data mining KDD '05**

Publisher: ACM Press

Full text available:  pdf(872.07 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Advances in computer networking and database technologies have enabled the collection and storage of vast quantities of data. Data mining can extract valuable knowledge from this data, and organizations have realized that they can often obtain better results by pooling their data together. However, the collected data may contain sensitive or private information about the organizations or their customers, and privacy concerns are exacerbated if data is shared between multiple organizations. Distri ...

14 [Strategic directions in electronic commerce and digital libraries: towards a digital agora](#) 

 Nabil Adam, Yelena Yesha
December 1996 **ACM Computing Surveys (CSUR)**, Volume 28 Issue 4

Publisher: ACM Press

Full text available:  pdf(244.34 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

15 [Information management technology in Asia: InfiniteDB: a pc-cluster based parallel massive database management system](#) 

 Jianzhong Li, Hong Gao, Jizhou Luo, Shengfei Shi, Wei Zhang
June 2007 **Proceedings of the 2007 ACM SIGMOD international conference on Management of data SIGMOD '07**

Publisher: ACM Press

Full text available: Additional Information:

 pdf(291.57 KB)[full citation, abstract, references, index terms](#)

This paper describes a PC-cluster based parallel DBMS, InfiniteDB, developed by the authors. InfiniteDB aims at efficiently storing and processing of massive databases in response to the rapidly growing in database size and the need of high performance analyzing of massive databases. It supports the parallelisms of intra-query, inter-query, intra-operation, inter-operation and pipelining. It provides effective strategies for processing massive databases including the multiple data declusterin ...

Keywords: data declustering, parallel algorithm, parallel database, parallel query processing

16 DB-4 (databases): similarity search: Localized signature table: fast similarity search on transaction data

 Qiang Jing, Rui Yang, Panos Kalnis, Anthony K. H. Tung
November 2004 **Proceedings of the thirteenth ACM international conference on Information and knowledge management CIKM '04**

Publisher: ACM Press

Full text available:  pdf(200.77 KB) Additional Information: [full citation, abstract, references, index terms](#)

Recently, techniques for supporting efficient similarity search over huge transaction datasets have emerged as an important research area. Several indexing schemes have been proposed towards this direction. Typically, these schemes provide a tradeoff between searching efficiency and indexing overhead in terms of space.

In this paper, we propose a novel indexing scheme for similarity search on transaction data. Based on well-studied clustering techniques, we develop a construction algor ...

Keywords: data mining, indexing, similarity search, transaction data

17 Extracting predicates from mining models for efficient query evaluation

 Surajit Chaudhuri, Vivek Narasayya, Sunita Sarawagi
September 2004 **ACM Transactions on Database Systems (TODS)**, Volume 29 Issue 3

Publisher: ACM Press

Full text available:  pdf(698.37 KB) Additional Information: [full citation, abstract, references, index terms](#)

Modern relational database systems are beginning to support ad hoc queries on mining models. In this article, we explore novel techniques for optimizing queries that contain predicates on the results of application of mining models to relational data. For such queries, we use the internal structure of the mining model to automatically derive traditional database predicates. We present algorithms for deriving such predicates for a large class of popular discrete mining models: decision trees, nai ...

Keywords: Complex predicate optimization, simpler rules from complex predictive functions

18 Web mining for web personalization

 Magdalini Eirinaki, Michalis Vazirgiannis
February 2003 **ACM Transactions on Internet Technology (TOIT)**, Volume 3 Issue 1

Publisher: ACM Press

Full text available:  pdf(293.73 KB) Additional Information: [full citation, abstract, references, citings, index terms, review](#)

Web personalization is the process of customizing a Web site to the needs of specific

users, taking advantage of the knowledge acquired from the analysis of the user's navigational behavior (usage data) in correlation with other information collected in the Web context, namely, structure, content, and user profile data. Due to the explosive growth of the Web, the domain of Web personalization has gained great momentum both in the research and commercial areas. In this article we present a survey ...

Keywords: WWW, Web personalization, Web usage mining, user profiling

19 Business intelligence: Developing a characterization of business intelligence

 **workloads for sizing new database systems**

Ted J. Wasserman, Patrick Martin, David B. Skillicorn, Haider Rizvi

November 2004 **Proceedings of the 7th ACM international workshop on Data warehousing and OLAP DOLAP '04**

Publisher: ACM Press

Full text available:  [pdf\(404.55 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

Computer system sizing involves estimating the amount of hardware resources needed to support a new workload not yet deployed in a production environment. In order to determine the type and quantity of resources required, a methodology is required for describing the new workload. In this paper, we discuss the sizing process for database management systems and describe an analysis for characterizing business intelligence (BI) workloads, using the TPC-H benchmark as our workload basis. The char ...

Keywords: business intelligence, capacity planning, clustering, sizing, workload characterization

20 Short papers: COFI approach for mining frequent itemsets revisited

 Mohammad El-Hajj, Osmar R. Zaïane

June 2004 **Proceedings of the 9th ACM SIGMOD workshop on Research issues in data mining and knowledge discovery DMKD '04**

Publisher: ACM Press

Full text available:  [pdf\(267.02 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

The COFI approach for mining frequent itemsets, introduced recently, is an efficient algorithm that was demonstrated to outperform state-of-the-art algorithms on synthetic data. For instance, COFI is not only one order of magnitude faster and requires significantly less memory than the popular FP-Growth, it is also very effective with extremely large datasets, better than any reported algorithm. However, COFI has a significant drawback when mining dense transactional databases which is the case ...

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